United States Environmental Protection Agency	POTENTIAL HAZARDOUS WASTE SITE SITE IDENTIFICATION ("DISCOVERY")	I. IDENTIFICATION 01 ST:	02 SITE NUMBER: A3P1

ORIGINAL (Red)

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NUMBER, OR SPECIFIC LOCATION IDENTIFIER				
Neutron Products, Inc.	22301 Mount Ephraim Road				
03 CITY	**04 ST**	**05 ZIP CODE**	**06 COUNTY**	**07 CO CODE**	**08 CONG DIST**
Dickerson	MD	20842	Montgomery		

09 DIRECTIONS TO SITE (Starting from nearest public road; enter up to 4 lines of text)

From Frederick, MD, take MD-85 South. MD-85 eventually becomes MD-28. Take MD-28 into Dickerson, MD. Take a left onto Mt. Ephraim Road.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, residential, mailing)			
Neutron Products, Inc.	22301 Mount Ephraim Road			
03 CITY	**04 ST**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**	
Dickerson	MD	20842		
07 OPERATOR (If known and different from owner)	**08 STREET (Business, residential, mailing)**			
Same as above				
09 CITY	**10 ST**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**	

13 TYPE OF OWNERSHIP (Mark one; use "insert" mode)

X A. PRIVATE __ B. FEDERAL (Agency name):_____ __ C. STATE __ D. COUNTY
__ E. MUNICIPAL __ F. OTHER (Specify):_____ __ G. UNKNOWN

IV. HOW IDENTIFIED

01 DATE IDENTIFIED: 12/17/01 (Month/Day/Year)

02 IDENTIFIED BY (Mark all that apply; use "insert" mode)

__ A. CITIZEN COMPLAINT __ B. INDUSTRY X C. STATE/LOCAL GOVERNMENT
__ D. AERIAL RECONNAISSANCE __ E. RCRA INSPECTION __ F. SURFACE IMPOUNDMENT ASSESSMENT
__ G. OTHER EPA IDENTIFICATION __ H. OTHER (Specify):_____

V. SITE CHARACTERIZATION

01 TYPE OF SITE (Mark all that apply; use "insert" mode)

X A. STORAGE X B. TREATMENT __ C. DISPOSAL __ D. UNAUTHORIZED DUMPING __ E. OTHER (Specify):_____

02 SUMMARY OF KNOWN PROBLEMS (Provide narrative description; enter up to 6 lines of text)

The Neutron Products, Inc. provides irradiation services using cobalt 60. The files in EPA's possession are considered "Confidential Business Information" and therefore further detail or description of their operations cannot be given at this time.

03 SUMMARY OF ALLEGED OR POTENTIAL PROBLEMS (Provide narrative description; enter up to 5 lines of text)

There is a potential for radioactive contamination in media on and surrounding the site.

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)			03 TELEPHONE NUMBER
Lorie Baker	US EPA Region III			215-814-3355
04 PREPARED BY	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBR**	**08 DATE (Month Day/Year)**
Lorie Baker Lorie Baker	US EPA	BF/Site Assmt.Sect	215-814-3355	1/16/02

MD-517

ORIGINAL

Site Assessment CERCLIS/WasteLAN Data Entry Form
EPA Region III - Brownfields & Site Assessment Section (3HS34)

See Code Guide for Instructions

Site Name: Neutron Products, Inc.

WasteLAN ID#: 0305785 **DSN:** MD-517 **EPA ID#:** MDN000305785

Site-Level Data

Edit CERCLIS/WasteLAN Identifying Information: (Site Name, Address, City, County, County ID, State, Zip Code)

Explain: _____

Site Type: *(See Attachment A for a list of valid options)* Manufacturing / Processing / Maintenance / Radioactive Products

Non-NPL Status: *(See Attachment A for a list of valid options)* OS

Collapsed Site Name: *(Enter the 'child' site to be merged into the 'parent' site above)* _____ **ID#:** _____

Parent/Child Relationship: _____

☐ **ERS Exclusion:** *(An ERS Exclusion Determination Form must be completed)* **ERS Exclusion Date:** _____

☐ **NFFA** (No Further Federal Action) **NFFA Date:** _____

☐ **Archive** *(See Attachment A: Prohibited Open Actions at Archived Sites)* **Archive Date:** _____

☐ **RCRA Deferral Audit Special Initiative** ☐ Lead Confirmed ☐ New Decision ☐ Further Superfund Assessment

Action-Level Data

Action Name	Lead	Start Date	Compl. Date	Qualifier
Pre-CERCLIS Screening (HX)	F EP	/ /	/ /	
Site Discovery (DS)	F EP FF S TR		/ /	
Preliminary Assessment (PA)	F EP S TR	/ /	/ /	A D F H L N W DN B SA
Fed Fac Preliminary Assessment Review (RX)	F EP S TR	/ /	/ /	A D H L N DN B SA
Site Inspection (SI)	F EP S TR	/ /	/ /	A D F H L N W DN B SA
Combined PA/SI (NX)	F (EP) S TR	5/13/03	3/03/05	A D F H (L) N W DN B SA
Site Inspection Prioritization (SH)	F EP S TR	/ /	/ /	A D F H L N W DN B SA
Site Reassessment (OO)	F EP S TR	/ /	/ /	A D F H L N W DN B SA
Expanded Site Inspection (ES)	F EP S TR	/ /	/ /	A D F G L N W DN B SA
Fed Fac Site Inspection Review (TY)	F EP S TR	/ /	/ /	A D H L N DN B SA
Fed Fac ESI Review (TZ)	F EP S TR	/ /	/ /	A D G L N DN B SA
ESI/RI (SS)	F EP S TR	/ /	/ /	A D F G L N W DN B SA
HRS Package (HR)	F EP S TR	/ /	/ /	D F N O W DN SA
Int. Rmvl Assess and Preliminary Assess (QT)	F EP S TR	/ /	/ /	A D F H L N W DN B SA
Int. Rmvl Assess and Site Inspection (QJ)	F EP S TR	/ /	/ /	A D F H L N W DN B SA
Int. Rmvl Assess and SI Prioritization (QO)	F EP S TR	/ /	/ /	A D F H L N W DN B SA
Int. Rmvl Assess and Combined PA/SI (OU)	F EP S TR	/ /	/ /	A D F H L N W DN B SA
Int. Rmvl Assess and ESI/RI (OV)	F EP S TR	/ /	/ /	A D F G H L N W DN B SA
Int. Rmvl Assess and ESI (OY)	F EP S TR	/ /	/ /	A D F G H L N W DN B SA
Int. Rmvl Assess and HRS Package (OZ)	F EP S TR	/ /	/ /	A D F H L N W DN B SA
Other Cleanup Activity (VA)	FF SR PS RP (SE) S SN TR	3/03/05	/ /	H (L)
☐ Comprehensive Site Investigation ☐ Remedy Selection ☐ Construction ☐ Post-Construction Maintenance ☐ Design ☐ Short Term Cleanups		/ /	/ /	
Laboratory Support (LA) Start Date - date site is initiated Completion Date - date site is archived	F EP FF MR SR PS RP SD S SN TR	/ /	/ /	
Comfort / Status Letter Start Date - date letter requested Completion Date - date of letter	FE	/ /	/ /	WL RE

Authorization (SAM) Signature & Date	Removal Info. Mgmt. Assistant Signature & Date	Data Quality Coord. Signature & Date
Lorie Baker 3/3/05	3/9/05	3/9/05

ORIGINAL

Site Assessment CERCLIS/WasteLAN Data Entry Form
EPA Region III – Brownfields & Site Assessment Section (3HS34)

Instructions for Completing and Submitting the Form

Note: Do not use this form to:
1) enter a new site into CERCLIS/WasteLAN; use the Site Discovery form, or
2) to enter Targeted Brownfields Assessment information; use the WasteLAN Brownfields Module form.

1. Basic Site Information: Enter the site name. For all sites, enter the WasteLAN ID# (this 7-digit # begins with "03" and can be found in WasteLAN.) For CERCLIS sites, also enter the Dump Site Number (DSN) and EPA ID#.
2. Site-Level Data: This data applies to the overall site, not to a specific action.
   - A. Site Type: If Site Assessment program initiates site in CERCLIS, a site type (s) determination must be made (see Attachment A for listing of site types.)
   - B. Non-NPL Status: WasteLAN automatically generates a value based on actions and dates. To override, select a different value from the list (see Site Status and Description/Operable Unit screen.) See attached for a list of valid NPL/Non-NPL Status Values and Codes. Also, see (c) in Appendix A of the Superfund/Oil Program Implementation Manual ("SPIM") for additional info.
   - C. Collapsed Site Name: When a determination is made that an NPL/Non-NPL site should be "Collapsed" and addressed as part of another existing site, all activities at the Child site end and no further actions should be recorded at that site. The Child site ID and non-NPL status will identify all future activity as part of a Parent site. The Child site name and ID must be recorded in WasteLAN as an "Alias" under the Parent site and all future site activity along with all future financial transactions will be recorded at the Parent Site ID.
   - D. Parent/Child Relationship: Users can create a Parent/Child relationship in the following two ways:
     1. Assigning a Parent to a Child site on the Site Location screen by entering a Parent Site ID and then changing the NPL or non-NPL status on the Site Status and Description/Operable Units screen as described below.
     2. Assigning one or more child sites to a parent by accessing the Add/Delete Child Site screen on the Site Location screen.

Scenario	Site	NPL Status	Non-NPL Status
Relationship between NPL Parent site and Non-NPL Child site	Parent	Proposed (P) Final (F) Deleted (D) Removed (R) Withdrawn (W)	blank, field grayed out
	Child	Site is part of NPL site (A)	blank, field grayed out
Relationship between two non-NPL sites	Parent	Not on the NPL (N) Pre-proposal site (S)	many possible values (ex. ESI Start Needed, Other Cleanup Activity)
	Child	Not on the NPL (N)	Addressed as part of another non-NPL site (AX)

   - E. Eligible Response Site (ERS) Exclusion: Indicate if the site should be Excluded. If yes, an ERS Exclusion Determination Form must be completed. For the exclusion date, enter the Branch Chief signature date from the ERS Exclusion Determination Form.
   - F. NFFA: Indicates if the site requires "No Further Federal Action." Sites that have an NPL status of F or P, or have any planned or ongoing enforcement, cost recovery or removal activities are not eligible for No Further Federal Action. The NFFA date is system generated in WasteLAN when the NFFA checkbox is checked.
   - G. Archiving: It has been determined that "No Further Federal Superfund Interest" exists at this site based on available information. No further site assessment, remedial, removal, enforcement, cost recovery, or oversight activities are being planned or conducted at this time. See Attachment A for a list of Prohibited Open Actions at Archived Sites. Also, see 5(e) in SPIM Appendix A for additional information.
   - H. RCRA Deferral Audit Special Initiative: Indicate which one of the three categories the site falls into.
3. Action-Level Data: This data applies to particular actions, not to the overall site.
   - A. For Pre-CERCLIS Screening Assessments, the information should be tracked in WasteLAN, including activities at sites not found to be CERCLA-eligible. Sites that are screened out of CERCLIS will be tracked in WasteLAN through the "Not a valid Site or Incident" values in the NPL and Non-NPL status field. If the decision is made that the site requires NPL assessment and potential cleanup under CERCLA authority, it should be added to the CERCLIS inventory by entering a Discovery Date, a valid NPL status, and a valid Non-NPL Status.
   - B. The *Action, Lead,* and *Start Date* should be entered in CERCLIS as soon as an action is started; do not wait until the action has been completed to submit the Data Entry Form. The *Completion Date* and *Qualifier* should be entered as soon as the action is completed. See the appropriate section of SPIM Appendix A for specific definitions of start and completion dates for particular actions.
   - C. Action Name: Circle the appropriate Action Names.
   - D. Lead: Circle the lead for each action. Lead codes are:

F = Fund-Financed	RP = PRP	FF = Federal Facility
S = State	SN = No Fund Money	PS = PRP Response Under State
TR = Tribal	SR = PRP Lead Under State	SE = State Enforcement
SD = State Deferral	EP = EPA In-House	MR = Mixed Funding Federal/RP

   - E. Qualifier: Circle the qualifier for each action. Qualifier codes are:

A = Site collapse into an existing NPL site	DN = Deferred to Nuclear Regulatory Commission (NRC)
D = Deferred to RCRA Subtitle C Program	B = Addressed as part of another Non-NPL site
F = Referred to Removal Program, with further remedial assessment expected/needed	G = Recommended for HRS scoring
	RS = Region confirmed successful deferral completion
O = Proposed to NPL	RT = Region terminated deferral
H = Higher priority for further assessment	W = Referred to Removal Program, with no further remedial assessment expected/needed
L = Lower priority for further assessment	
N = No further *remedial* action planned (NFRAP)	SA = Superfund Alternative Site

   - F. Comfort/Status Letters: The start date is the date of the request for a letter; the completion date is the date of the letter. Where applicable, select one of the qualifiers: WL = Windfall Lien or RE = Reasonable Steps. See 2(z) in SPIM Appendix C for more information.
4. Signature Block: The SAM or other authorized employee must sign and date the form.
5. Attachment A listed as a reference: Valid NPL/Non-NPL Status Values & Codes, Site Type Main Categories and Subcategories, and Prohibited Open Actions at Archived Site.

Submit the completed form to the Removal Branch Data Control Clerk. The form will be returned after the data has been entered and QA'd. Place the returned form into the site file.

ORIGINAL

POLREP #1
Neutron Products, Inc. Facility
22301 Mt. Ephram Road
Dickerson, Montgomery County, MD 20842
Event: CERCLA Removal Assessment
GPS N39o13.207'
W77o25.307'
Attn: RRC, C. Kleeman, S. Minnick, D. Matlock, L. Baker, C. Howland, C. Deitzel, D. Sternburg, M. Burke

I. Situation (December 27, 2002)

A. This Polrep covers EPA activities performed by the Removal Response Section of EPA from April, 2002 through December, 2002.

B. The Neutron Products, Inc. facility is an operational facility which formerly produced and uses Cobalt 60 (^{60}Co), a radioactive isotope.^{60}Co is used primarily in the radionuclide teletherapy industry as a treatment for cancer. ^{60}Co is produced in nuclear reactors by the irradiation of neutrons of the common stable form of ^{59}Co. The half-life of ^{60}Co is 5.26 years.

C. The Neutron Products Facility is licensed by the State of Maryland. The State of Maryland is an "Agreement State", meaning that the licensing authority of the Nuclear Regulatory Commission has been delegated to the State under the Atomic Energy Act of 1954.

D. Neutron Products, Inc. formerly had four licenses for operations involving radioactive materials. License 01 was for the manufacturing of ^{60}Co. License 03 pertains to ^{60}Co source exchange. Licenses 04 and 05 are for irradiation of manufactured goods.

E. In November of 2000, the Circuit Court of Montgomery County, MD ordered a permanent injunction against Neutron Products for the operations under the 01 License for the inability to secure financial assurance. Irradiation activities under the 04 and 05 licenses continue.

F. On April 23, 2002, MDE sent a letter to EPA requesting a removal assessment be performed at the facility.

G. This polrep documents the activities ongoing as part of the removal assessment. The EPA team on the Site is as follows:

Fund-lead OSC: Chris Wagner
Enforcement-lead OSC: Dennis Matlock
Site Assessment Manager: Lorie Baker
Office of Regional Counsel: Charlie Howland
Community Involvement Coordinator: Carrie Deitzel

Radiation Advisor: Sherri Minnick
ATSDR: Bucky Walters
Congressional Liaison: Mike Burke

II. Actions Taken

A. The facility is located in a sparsely populated area on Mt. Ephram Road near State Route 28 in Dickerson, Maryland. The facility is approximately 6 acres in size and includes the manufacturing facility, office space, an enclosed courtyard area, and an enclosed runoff area. Approximately 4 families live within 100 yards of the facility. The residence immediately adjacent to the facility is owned by Neutron Products Inc., and is not used as a residence nor is included as one of the 4 residences. All residents use private drinking water wells. MDE and Neutron Products, Inc. regularly perform radiation monitoring on the residents' property. Additionally, Neutron Products, Inc. maintains dosimeters (cumulative radiation exposure) on these four homes. A MARC train station is located next to the facility. A CSX rail line also runs behind the facility. The entire facility is enclosed with a chain-link fence which is monitored electronically. The facility is manned approximately 10-12 hours per day, 5-6 days per week. There is not 24-hour security at the facility.

B. During the period of June until August 2002, EPA had several meetings with MDE and the president of Neutron Products, Inc. MDE is concerned about the fate of the materials used in the 01 License now that the manufacturing process has been ordered to cease. Neutron Products, Inc. has missed several waste shipments and has not taken any action to remove or dispose materials from the 01 area since the injunction. Neutron Products, Inc. is still operating their irradiators and maintain personnel on scene for Site maintenance and monitoring. MDE reports a long history of non-compliance with this facility. Neutron Products, Inc. continues to pursue legal recourse for the operation of the manufacturing process. MDE and Neutron Products, Inc strongly disagree with the amount of financial assurance needed for the facility.

C. In August of 2002, EPA performed a sampling assessment with the assistance of EPA's Office of Radiation and Indoor Air (EPA-ORIA) of Montgomery, Alabama. ATSDR also assisted. The assessment was an integrated removal/remedial assessment. Site Assessment Manager Lorie Baker was also on scene. The president of Neutron Products, Inc. granted access to EPA. EPA collected surface soil samples from both on and off the property. Samples were split with Neutron Products, Inc. personnel.

D. Real-time monitoring was performed using a micro-Roentgen meter to measure gamma radiation. ^{60}Co is a gamma-emitter. Background radiation is approximately 8-10 μR/hr. Readings in the immediate neighborhood were in the range of 10-30 μR/hr. These are instantaneous readings and are a "monitoring" reading rather than an indication of "exposure". These readings are believed to be due to the waste stored on Site in the courtyard area. ^{60}Co emits two high-energy gamma-rays, resulting in phenomenon known as "sky-shine". As part of the licensing requirement, Neutron Products, Inc. is required to

maintain dosimeters on the 4 homes in the immediate area. Under the license, the dosimeters are not to exceed 100 mr/year. EPA was shown data by Neutron Products, Inc. that shows that this reading was not exceeded for the past several years.

E. The results of the sampling effort were received by EPA in November of 2002. The sampling showed some contamination consistent with MDE past sampling efforts, but did not indicate any levels of contamination in the residential area which would prompt an immediate emergency response action by EPA. Offsite contamination was primarily subsurface soil contamination along an old railroad siding, now covered with vegetation, which is contributed to past actions at the facility. However, MDE records show historical events where contamination was carried off the property. MDE's prompt enforcement actions minimized these events from occurring.

F. Sampling performed by MDE has never shown any contamination of groundwater. EPA did not perform any groundwater sampling.

G. On August 8, 2002, OSC Wagner met with several members of the Dickerson Community Group. EPA will coordinate any future actions with this group. CIC Carrie Deitzel will assist with these efforts.

H. On August 12, OSC Wagner and EPA Radiation Advisor met with the Montgomery County Department of Health. They have not been actively involved with the facility, but would like to be kept updated. The Department of Health has no special jurisdiction over this facility.

I. On November 14, 2002, OSC Wagner met with emergency services personnel from Montgomery County to discuss pre-planning for terrorism events. Montgomery County agreed to work with EPA on creating a counter-terrorism plan for this facility. The Montgomery County Fire & Rescue Dept. indicated that they have always had cooperation from this facility in the past.

J. On November 15, 2002, EPA met with MDE regarding future actions at the facility. EPA and MDE agreed that additional information was needed from Neutron Products, Inc. regarding their future plans and their continued ability to operate in the absence of manufacturing operations.

K. The president of Neutron Products, Inc. has requested that he be included on all meetings between EPA and MDE which pertain to this facility.

L. The facility is being evaluated for possible future consideration for the National Priorities List.

III. Future Plans

A. An information request pursuant to CERCLA 104(e) is being prepared to send to the facility owner.

B. EPA to continue to work on pre-planning efforts with MDE and Montgomery County.

C. Removal assessment to continue to determine future needs and resources.

D. In the event the facility should become abandoned, EPA will prepare to take the immediate necessary actions.

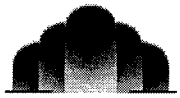
E. EPA to coordinate actions with DOE for possible technical assistance.

F. All actions will be coordinated with the EPA Radiological Emergency Response Plan.

_____

Chris Wagner, OSC
EPA Region III
Richmond, VA

ORIGINAL



Lorie Baker
08/23/02 08:25 AM

To: Kevin Wood/R3/USEPA/US@EPA
cc:
Subject: Health advisory is NOT warranted

----- Forwarded by Lorie Baker/R3/USEPA/US on 08/23/02 08:25 AM -----

Sheri Minnick
08/22/02 03:00 PM

To: Christine Wagner/R3/USEPA/US@EPA, Lorie Baker/R3/USEPA/US@EPA, Dennis Matlock/R3/USEPA/US@EPA
cc:
Subject: Health advisory is NOT warranted

FYI, I asked Pete to forward me ATSDR's opinion on Neutron Products.

----- Forwarded by Sheri Minnick/R3/USEPA/US on 08/22/2002 02:59 PM -----

Peter Gold
08/22/2002 02:42 PM

To: Sheri Minnick/R3/USEPA/US@EPA
cc:
Subject: Health advisory is NOT warranted

Please see the attached. Thanks
----- Forwarded by Peter Gold/R3/USEPA/US on 08/22/02 02:41 PM -----

"Charp, Paul" <pac4@cdc.gov>
08/16/02 08:49 AM

To: "Williams, Robert C. (Bob)" <rcw1@cdc.gov>, "Isaacs, Sandra (Sandy) G" <Sgi1@cdc.gov>
cc: Tom Stukas/R3/USEPA/US@EPA, Peter Gold/R3/USEPA/US@EPA
Subject: Health advisory is NOT warranted

I have returned from the Neutron Products site visit where I met with ATSDR regional staff, EPA, state, and facility representatives. The site is in a rural area with less than 20 houses within a kilometer of the facility. The closest residences are either owned by the facility or are vacant. The EPA is considering listing the site but the Site Assessment Manger does not believe the facility will score high enough to trigger listing the site.

We performed radiological surveys and collected environmental samples around the facility property and off-site areas. ATSDR assisted in the surveys, identification of sampling locations, and collection of samples. The radiation levels 200 yards from the facility are indistinguishable from background; any elevated radiation readings are from the waste stored on site. Per conversations with the state, Neutron Products is under a court order to remove the waste but no action has been taken as yet. The site releases about 6 microcuries of cobalt 60 per year; this is within regulatory limits. Any air releases are in the form of metallic cobalt and the resulting contamination is particulate (hot spots).

In a nutshell, based on observations of population estimates, levels of radiation exposure surrounding the facility (off-site), and no uniform off-site contamination, I do not believe the current site conditions pose any threat to human health. No off-site soil contamination was found that exceeded the DHAC soil screening criteria; in fact no contaminated areas were found off-site.

If you would like a more detailed report, please let me know.

Thank you

ORIGINAL

Paul A. Charp, Ph.D.
Senior Health Physicist
Division of Health Assessment and Consultation
CDC/ATSDR
1600 Clifton Road E 56
Atlanta, Georgia 30333
404 498 0365
404 498 0063 (fax)

ORIGINAL

Calendar Entry:
Meeting

Subject:	Meeting with Paul Charp (ATSDR) re Neutron Products	Location:		ATSDR Library
Begins:	Wed 05/22/2002	09:00 AM	Entry type:	Meeting
Ends:	Wed 05/22/2002	10:00 AM		

Invitations already sent

To: Christine Wagner/R3/USEPA/US@EPA, Dennis Matlock/R3/USEPA/US@EPA, Lorie Baker/R3/USEPA Minnick/R3/USEPA/US@EPA
cc: Bucky Walters/R3/USEPA/US@EPA; Linda Baxter/R3/USEPA/US@EPA; Lora Werner/R3/USEPA/US Stukas/R3/USEPA/US@EPA
bcc:

☐ Pencil In	Time will appear free to others.
☐ Mark Private	Others cannot see any details about this event.
☒ Notify me	Have Notes notify you before the event.

Categorize:

Description:
Tom Stukas requested that we meet with Paul Charp of ATSDR regarding Neutron Products, as he is visiting the Region this week.

Dennis Matlock: 304-234-0284

action items

- visit by Chris W. & Bill B. in a few weeks (off-site)
- ask Charlie H. about timeline (Bob Field, MDE)
- view MDE records (Ray Manley) (410-631-3301)

ORIGINAL

June 24, 2002 Meeting with MDE:

* mtg place: Dickerson Market
Rte. 28
@ 9:30 am

EPA: Chris Wagner, Dennis Matlock, Sheri Minnick, Kevin Wood

MDE: Alan Jacobson, Bob Nelson, ~~Ray~~ Leon Rachuba; Bob Field, ~~Frank~~ Lewy, Rosewin Sweeney

- permanent inj. went into effect in Dec. – 180 days is over
- priorities: ① reduce dose rating to community
  → emptying N & S storage areas
  ② ~~remove~~ ~~reduce~~ sources (but under "dirty bomb" scenario ⇒ this might be highest priority)
  ③ decommission facility
- have missed court-ordered waste shipments
- haven't cleaned up soil as ordered
- economic viability
  - just "dosed up" irradiators
  - but will become decreasingly viable ($\frac{1}{2}$ life of 5 years)
- citizens – Overdorfer (Mike & Carol) – head up citizen's group
  - antagonistic: Nesbitt
- Cobalt 60 LLC: Jack R., Bill R. (son), Francis C. (lawyer), & 4th
- in past has stored ~~depleted~~ uranium in nearby barn
- land-sea containers w/ material

Neutron Products

(1/16/02) ORIGINAL Bill B., Lorie B., Kevin W., Linda B., Elizabeth Z.

ATSDR Health Advisory

* Dickerson, MD (NW of WDC)
* two operations - ① sterilizer (rad. Co 60 in pool of water) - large amt. of Co 60 (→ 10 million curies)
  - Co 60: half-life 8 yrs. ⇒ 1 Curie is very small
  - ⇒ contained in stainless steel capsules
  - sterilize medical equip, food
  - ② assembly of radioactive sources (Co 60)
  - waste being stored in garage/shed
  - also used equip.
  - possible disposal on site (tunnels)
  - small particles escape to neighboring properties - company routinely scans neighborhood to find and dig up
* finances - MD is an agreement state (NRC) - requirements must be at least as strict
  - supposed company to build up escrow fund (for clean up) - hasn't put much in (not nearly enough for clean up)
  - started process to close down license for operation # 2 in 1997 - through court system - State has prevailed throughout (pending possible appeal to State Supreme Court)
  - once operation #2 closes down, company will probably go bankrupt
  - connection to S. America (something fishy here) → moving $ out of country?
  - separate corp. owns cobalt

① Removal Enforcement Order
② NPL listing
  ⓐ ATSDR Health Advis. - 1-2 months
  ⓑ scoring

health risks: international/MD/commonly accepted: 100 m Rem/yr (background also = 100)
EPA: 15 mRem/yr ($= 1 \times 10^{-4}$)

Neutron Products meeting w/ MDE 03/26/2002

ORIGINAL

- manufacturing license: 01 (teletherapy) - 700K Ci
- servicing: 03
- industrial pool ... 04/05 (irradiators)
  - 2m Ci -900K Ci
  - 750K Ci -400K Ci
- "stellite" in pool: 30K Ci
- low level contamination under pools & canals (from when only lined w/ cement - mid 1970s)
- 1980: 1 milliCi particle found on RR ~~tracks~~
  ½-50 microCi particles

- surveys - monthly, up to 1 km
  - have found as far away as
  - about 100 over 20 years
  - lower levels now
  - better controls now -
  - recent releases are windbourne (dust, leaves

1 Ci of Cobalt 60 = 4 mg

~~NPL~~
~~12-14 mil~~
"dry pond"
+ cont. soil area (100 uCi?)
+ doc.
+ sw
~~gw~~
+ comm.

- surface runoff collects
- since '87, only shipped (signif. amt. of) waste offsite once, under order (and didn't make second ordered shipment)

- permanent injunction eff. as Dec 10, 2001 (last appeal rejected)
- trust fund has about $75K
- guarantor during appeal period: Perma-Grain (irradiator of flooring) → bound to purchase ⅔ of mat'l
- market value = $1/Ci (irradiators), $4/Ci (medical)
- 180 day period for offsite shipment + cont'd operation ends June 4 ("decommissioning period")
- still orders for 8 customers (ends 60 days from Feb. 28)

- company feels that MDE won't shut them down b/c then state would be left w/ a costly cleanup

★ goal: safe closure in a timely manner ★

- no gw contamination

ORIGINAL

EPA United States Environmental Protection Agency

Superfund

How Sites are Placed on the NPL

Sites are first proposed to the National Priorities List (NPL) in the *Federal Register*. EPA then accepts public comments on the sites, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Section 300.425(c) of the NCP, the Federal regulation by which CERCLA is implemented (55 FR 8845, March 8, 1990), provides three mechanisms for placing sites on the NPL:

- The first mechanism is EPA's Hazard Ranking System (HRS).
- The second mechanism for placing sites on the NPL allows States or Territories to designate one top-priority site regardless of score.
- The third mechanism allows listing a site if it meets all three of these requirements:
  a. the Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a health advisory that recommends removing people from the site;
  b. EPA determines the site poses a significant threat to public health; and
  c. EPA anticipates it will be more cost-effective to use its remedial authority (available only at NPL sites) than to use its emergency removal authority to respond to the site.

40 CFR 300.425(c) (p.66)

QuickLinks
Acronyms
Topics
Publications
Key to the Site

Tools
Enviromapper - map hazardous waste sites in your community.

Use the Basic or Advanced Query to locate hazardous waste sites near you.

Review Record of Decision Abstracts (RODs).

Use a Map of NPL Sites in the United States

Feedback
Visitor Survey
Got a Comment?

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BOBBY APPROVED

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Neutron Products Mtg. 3/26/02

Name	Office	Tel.	E-mail
Charles Howland	EPA Reg. III	215-814-2645	howland.charles@epa.gov
Michael Forlini	OAG/MDE	410-631-3421	mforlini@mde.state.md.us
Bill Belanger	EPA Cubicle	215-814-2082	belanger.bill@epa.gov
Sheri Minnick	EPA Reg III	215-814-2089	minnick.sheri@epa.gov
Tom Straas	Atty Reg III	215-814-3142	straas.tom@epa.gov
~~Jennifer~~ Hubbard		215-814-3328	hubbard.jennifer@epa.gov
Frank Levi	MDE Attorney, Cockeysville office	410-631-3033	flevi@mde.state.md.us
Karl Kalbacher	MDE - Superfund	(410) 631-3437	kkalbacher@mde.state.md.us
Ann Marie DeBiase	MDE/HAZMA	410-631-3255	adebiase@mde.state.md.
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Kay Manley	MDE/ARMA/RHP	410 631-3300	rmanley@MDE.STATE.MD.U
Alan Jacobson	MDE/ARMA/RHS	410 631-3300	ajacobson@mde.state.md.u
MICHAEL TARING	EPA	2158143371	TARING.MICHAEL@EPA.GOV
Kevin Wood	EPA/Site Assessment	215-814-3303	wood.kevin@epa.gov
Lorie Baker	EPA/Site Assessment	215-814-3355	baker.lorie@epa.gov
DENNIS CARNEY	EPA/Acting Dep. Dir - HSCI	(215) 814-3241	CARNEY.DENNIS@EPA.GOV

ORIGINAL

Sheri Minnick

06/19/02 04:27 PM

To: Lorie Baker/R3/USEPA/US@EPA, Kevin Wood/R3/USEPA/US@EPA, Dennis Matlock/R3/USEPA/US@EPA, Christine Wagner/R3/USEPA/US@EPA

cc:

Subject: Next week meetings regarding Neutron Products

Directions to the State of MD office:

95 South to last exit before Ft. McHenry tunnel- Keith Avenue exit
At light turn left onto Keith Ave
After a couple of lights, it merges with Broening Hwy.
Get in left lane and turn left into MDE parking lot

Go to 2500 building to sign in and ask for Alan Jacobson of Rad Health Program

Directions to NP:

Route 70 west into Frederick. Rt 85 South, then Route 28 south into Dickerson. Mount Ephraim Rd is off of Route 28.

22301 Mount Ephraim Rd is the address.

Safety:

- No hard hats or safety shoes are required but everyone needs to bring their dosimetry badge. I have an extra for Lorie. Also, wear cotton clothes because hot particles are known to stick to synthetics such as lycra or polyester. Also, wear pants and walking shoes and relatively tight fitting clothing. For those who wish to go into the hot areas, we'll need to dress out, so bring shorts and a t-shirt to put under your clothes because their are only unisex change out facilities.

cell phone 215-353-3961

ORIGINAL

RADIOLOGICAL HEALTH PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 WASHINGTON BLVD.
BALTIMORE, MD 21230

MEMORANDUM

TO: Roland Fletcher, Manager Radiological Health Program

FROM: Alan Jacobson, Health Physicist Supervisor

DATE: April 21, 2003

RE: Comments on the EPA' s NPI Site Characterization

1. We need a copy of the Tier Definitions
2. 160 Curies of radioactive waste is store in the Hot Waste Storage Area. 2820 Curies of radioactive waste is stored in the main pool and 103 Curies of radioactive waste is stored in the North Canal. There are 563,800 Curies of cobalt-60 stored in the main pool. The majority of this cobalt-60, perhaps all of it, may be considered radioactive waste for the purposes of decommissioning. There are approximately 2000 cubic feet of contaminated soil in the dry pond and adjacent areas with concentration of cobalt-60 between 8.0 and 600.0 picocuries per gram. There is also approximately 2000 cubic feet of contaminated soil stored in Sea-Land Containers in the courtyard of the LAA. There are also significant levels of contamination in the ventilation system.
3. Radioactive materials are continuously released from the facility in an uncontrolled manner through unmonitored pathways.
4. A November 3, 2000 Court Order prohibits Neutron from receiving, manufacturing and distributing cobalt-60. Neutron was ordered to cease melting operations several years earlier. Prior to the permanent injunction, approximately one third of Neutron' s business involved teletherapy cancer treatment. Exceptions, stays and Court Orders enabled Neutron to receive material up until November 2001 and ship sources up until July 2002. Neutron currently operates two pool type panoramic irradiators loaded with 380,000 and 1,139,100 curies of cobalt-60. In addition to the stockpile of radioactive waste and cobalt-60 without market value (low specific activity) at the Dickerson facility, Neutron has collected approximately 25,000 kilograms of depleted uranium waste at a warehouse in West Virginia under the terms and conditions of a NRC-Region 2 license. Neutron also owns 26 depleted teletherapy sources containing approximately 48,260 curies of cobalt-60 at Southwest Research in Texas. Neutron continues to remove sources from old Teletherapy units and they send them to Southwest because the Court Order prohibits receipt of material at the Dickerson facility. Under an agreement with Southwest, Neutron is required to pay monthly storage fees.
5. The facility lacks adequate containment and engineering controls necessary to control releases of radioactive material. As a result of decades of collecting radioactive waste, a failure to implement a regular schedule of radioactive waste shipments and inadequate

shielding in the waste storage rooms, Dickerson residents living near the plant are exposed to unnecessary levels of radiation. The dose rate at the portico of the nearest residence is 106 millirem per year above background for 2002. A second home was also monitored for the year 2002 and the dose rate was reported to be 80 millirem per year above background . For the year 2002, the dose rate at the perimeter of the facility ranged from 80 to 253 millirem per year above background. In 1995 the dose rate at the perimeter ranged from 146 to 656 above millirem per year above background.

6. NPI is suspected to remain a potential health risk for local residents. Although Neutron has not melted in years, cobalt-60 continues to be released from the plant through unmonitored pathways. These releases are continuous and ongoing however, they are well below the levels where health effects would be expected. Also during the years of 1988 and 1989, there were numerous occurrences where Neutron employees' homes and automobiles were found contaminated with cobalt-60. In addition to the 73,000 dpm reading on an employee' s shoe, there are numerous occurrences of higher levels of contamination detected on employees leaving the restricted area through the Helgeson monitor. There have been 3 reported occupational overexposures to Neutron employees and several occurrences where Neutron employees ingested particles of cobalt-60. Skyshine is the indirect dose from gamma photons scattered in air, reflecting towards a radiation detector near the ground. Specifically at Neutron, the gamma rays emitting from the 160 curies of waste that is stored in the North and South Waste Storage Rooms penetrate through the roof, towards the sky, scatter and reflect towards the ground. The dose rate associated with skyshine is continuously monitored by Neutron and the RHP at selected sites on the facility' s perimeter, dry pond and several homes nearby.
7. Pool Water Leak-Neutron uses a system of three water filled pools connected by canals to shield cobalt-60 sources and canisters of waste containing very high radiation levels. Although there are redundant safeguards in place, a substantial pool leak could cause lethal dose rates of radiation in certain areas of the plant and substantially elevated dose rates in the community. If the pool leaked and a sufficient amount of water could not be maintained, certain residents may have to be evacuated. A pool leak could be caused by sabotage, explosion, earthquake, natural disaster or simply by a stress fracture in the cement and a weld failure in the stainless steel lining. Water to the plant is supplied by three potable wells instead of a municipal system. In the event of a pool leak along with a power failure or well failure, Neutron may not have the resources to replace the water at a sufficient rate in order to maintain the necessary shielding. The RHP discovered a leak in the Main Pool in 1974. Furthermore, Neutron may not have the personnel and financial resources to manage and repair a pool leak even if a sufficient water level is maintained.

Theft of Radioactive Material-Neutron does not employ security guards or conduct background checks on their employees. In fact, the Neutron employment application does not contain the question regarding " conviction of a felony". Neutron' s President repeatedly threatened to shoot and terminate a RHP Inspector during a 1998 inspection. A 2001 inspection revealed that Neutron employees were feeding cats inside the restricted area. The facility is not equipped with any type of video surveillance system. An unknown individual removed radiation monitors. An unknown individual has also removed contaminated soil. Neutron management has identified thefts of Neutron

property by their employees. On several occasions, Depleted Uranium was found by RHP inspectors stored off site in an unlocked barn. RHP inspectors also found a pump contaminated with cobalt-60 in this unlocked barn. Neutron once sent Depleted Uranium to a machine shop without informing the machinist of the radiological properties of the metal. As a result, the machinist was exposed to unnecessary levels of radiation and the machine shop was contaminated. There is a fence with a locking gate surrounding most of the facility however; on February 25, 2003 the locking mechanism was determined by the RHP to be inadequate. Specifically, the lock was defeated and easily bypassed with an ink pen. Although a modification was subsequently made, the automatic closure device failed and the gate was found open and unlocked by the RHP on February 27, 2003. Cobalt-60 has a high specific activity. The FBI has collected evidence that terrorists have planned to steal this type of material, fabricate a radiological dispersion device (RDD or dirty bomb) and detonate the device in an area with a high concentration of people.

Fire-The Limited Access Area (LAA) and the radioactive waste storage areas are not equipped with a fire suppression system. A fire in the waste storage rooms could release radioactive material into the community. A Neutron employee suffered third degree burns on one third of his body as a result of an electrical fire in the LAA in 1989. The LAA is equipped with a wide variety of redundant monitors, safeguards and safety systems. A fire could destroy this equipment, thereby creating unsafe conditions. Neutron may not have the personnel and financial resources necessary to safely replace and restore these safeguards after a fire. Neutron failed to post any part of a bond to cover the $750, 000 to $20,000,000 potential decommissioning costs. In 1994, Neutron could not afford to pay a $75,000 fine and arrangements were made so they could pay in monthly installments. In 1999, as a result of violations found during an investigation of an occupational overexposure, Neutron could not afford to pay a $19,200 fine and arrangements were made so Neutron could pay in monthly installments. In 2003, Neutron failed to pay their annual radioactive materials license fee. The RHP has recently received several reports indicating that Neutron is not paying their bills. Neutron declared bankruptcy in 1986 and reorganized under Chapter 11.

Safeguards-Neutron is required by the November 3, 2000 Court Order to maintain safeguards and a radiation safety program. In the future, Neutron may not have the personnel and financial resources to maintain required safety systems and support an adequate radiation safety program. Neutron has already missed several radioactive waste shipments deadlines required by the November 3, 2000 Permanent Injunction. The integrity of the radioactive waste containers is deteriorating. Neutron has no plans to ship required quantities of radioactive waste for disposal. Neutron may not have the personnel and financial resources to repackage this material. A February 2003 RHP inspection of Neutron' s irradiators revealed 21 violations including incomplete record keeping, unauthorized use, unauthorized transfer of radioactive waste, failure to evaluate water loss, procedure deficiencies and a critical safety system on the D-1 Irradiator failed.

8. Neutron is continuously releasing radioactive material into the environment through unmonitored pathways. As a result, there is potential radiological runoff to sensitive ecological systems. Over 150 Cobalt-60 particles have been discovered on residential

property up within a 1-kilometer radius of the facility. There is also the environmental risk of a pool leak. The main pool is contaminated with cobalt-60. Cobalt-60 is often found in the two-irradiator pools. A pool leak could cause contamination of ground water, aquifer and residential wells. The 1974 pool leak released approximately 40 millicuries of cobalt-60 to soils below the pool foundation. The containers of radioactive waste are deteriorating and Neutron has no plans of shipping significant quantities of waste for disposal.

9. Although required by a 1994 Court Order, Neutron has not built a courtyard enclosure to shield the courtyard area and adjoining buildings. Actually, the intent of the courtyard cover was to improve containment and control of cobalt operations. The November 3, 2000 Court Order prohibits manufacturing and distribution of cobalt-60 sources (approximately 1 one third of their business previously). The Order also requires radioactive waste shipments. There is no evidence that Neutron cannot afford regular waste shipments. Their actual financial status is not exactly clear. State Regulations that were upheld by the Maryland Court of Special Appeals requires Neutron to decommission their manufacturing facility in a timely, safe and predictable manner. Neutron' s senior management has stated, both verbally and in writing that they will only comply with Maryland radiation regulations that they agree with and will continue to be noncompliant with laws that they disagree with or find inconvenient.
10. Neutron has been stockpiling radioactive waste in Dickerson, Maryland for decades. Dickerson residents are exposed to unnecessary levels of radiations due to inadequate shielding of the radioactive waste collection. The facility lacks adequate containment and radioactive materials are continuously released from the plant through unmonitored pathways. As a result, soils found both on and off site exceed the license limit and a 1994 Court Order limit of 8.0 picocuries per gram. In 2001, Neutron attempted to ship a teletherapy source to an unauthorized recipient. The State of California turned the truck around. Although the November 3, 2000 Court Order prohibits Neutron from shipping or receiving radioactive material, in January 2002, they received a 1,150 Curies cobalt-60 source and stored it on their parking lot for approximately a month. In June 2002, Neutron inadvertently shipped several millicuries of waste to a municipal waste transfer station. The RHP was notified when the load tripped radiation alarms at the transfer station. Also in June 2002, Neutron removed millicurie quantities of contaminated resins from the two irradiators and transferred it to the waste storage rooms thereby increasing the volume of waste stored in this area. The November 3, 2000 Court Order requires Neutron to decommission their source manufacturing facility. Neutron has still not submitted an acceptable decommissioning plan. Furthermore, they have not taken even the first steps necessary to decommission the site. Neutron is in continuous violation of several Court Orders regarding financial assurance for decommissioning, failure to comply with radioactive waste shipment deadlines and exceeding soil concentration limits for cobalt-60 on and off site. Currently, the dose rate in certain parts of the Dickerson community exceeds EPA and NRC criteria for a decommissioned facility. Neutron senior management has stated both and in writing that they will not comply with these Court Orders and they will not decommission the plant in a timely manner.
11. No comment
12. No comment
13. No comment

14. No comment
15. Expected response costs $10-20 million over 5 years
16. $1,000,000

Source Activity

Source – decays – wants to become stable
does so by releasing energy – measured in Ci or disintegrations per second/min

3.7×10^{10} dps = 1 Ci

(Ci)
Curie = one gram radium

[also counts per s/min ⇒ gross measure]

⇒ α, β, γ

α: large, short distance, easily blocked → haz. if breathed in (lungs)
β: travel further, stop w/ Al
γ: travel much further; stop w/ very dense mat'l (concrete, lead, lots of water) → more haz.

Quality Factor
β, γ : QF = 1
α : QF = 10

Exposure

~~Roentgens~~ Roentgens (R)

- when γ interacts in air (ionizes) ⇒ measured in coul./kg (only γ)

⇒ HRS (per Ha)

Radiation Absorbed Dose

rad

Roethgen Equivalent Man (REM)

Rad × QF = Rem

⇒ measured by dosimeter
→ but only measures γ actually

400 ~~rem~~ rads/sec (instantaneous)

For CO_{60} (bec primarily a γ emitter)

1 R = 1 rad = 1 rem

(in this case 100 mrem/yr = 10 μR/hr)

NRC limit for resid (public)
- 100 mrem/year
- in past, sometimes over (up to 2001)
- but actual dose < 100

ORIGINAL

Cobalt-60 (Chemical Symbol Co)

- Produced commercially and used as a tracer and radiotherapeutic agent.
- Produced in a process called activation, when materials in reactors, such as steel, are exposed to neutron radiation.

Physical Properties

- Hard, brittle, gray metal with a bluish tint that is solid under normal conditions
- Cobalt can be magnetized similar to iron.
- Primarily a gamma emitter but also emits beta particles. – small amt.

Uses

- Widely used as a medical and industrial radiation source.
- Medical use consists primarily of cancer radiotherapy.
- Industrial uses include testing of welds and castings, and a large variety of measurement and test instruments including leveling devices and thickness gauges.
- Used to sterilize instruments, and to irradiate food to kill microbes and prevent spoilage.

Radioactive Decay Products

- Decays to non-radioactive nickel.
- Half-life of about 5.2 years.

Potential Health Impacts

- Major concern is from external exposure to gamma radiation.
- Can be swallowed with food or inhaled in dust.
- The magnitude of the risk of adverse health effects depends on the quantity of cobalt-60 involved and on exposure conditions, such as time of exposure, distance from an the source (for external exposure), and whether the cobalt-60 was ingested or inhaled.
- Once in the body, some of it is quickly eliminated in the feces. The rest is absorbed into the blood and tissues, mainly the liver, kidney, and bones. This cobalt leaves the body slowly, mainly in the urine.
- Cobalt in the body can be detected in the urine.
- A procedure known as whole-body counting can measure the amount of gamma ray-emitting radioactive material in the body such as the amount of cobalt-60 that has been inhaled and is still in the lungs.
- Other techniques that may be used include the taking of blood or fecal samples, then measuring the level of cobalt-60.
- These tests are more sensitive and more accurate if done shortly after exposure.
- Because cobalt-60 releases gamma rays, it can affect the health of people nearby even if they do not ingest or inhale it.
- Exposure to low levels of gamma radiation over an extended period of time can cause cancer.

ORIGINAL

"Amme, Tanya"
<Tanya.Amme@dynco
rp.com>

08/09/02 03:20 PM

To: Lorie Baker/R3/USEPA/US@EPA
cc:
Subject: RE: Radiation Site - Early Technical Assistance

Hi Lori,

Well, it is a little difficult to give you a definite answer with this information that I have; however, I will take a stab at it.

1) You're documentation of an observed release by direct observation depends on the type of evidence you have. Without direct samples of this release occurring, it will be difficult to produce a convincing arguement. However, if you have really good documentation that this is the only way that the Cobalt 60 could have gotten to these properties, it might be good enough to stand on its own. I would suggest finding references that document the company's processes. Documents showing that particles could be released and probably were released to the air on a regular basis. (Or/and still does release to the air.) Also, document that there is no other source of Cobalt 60 in the area. You should probably also try to document that the material didn't leave the facility by some other form (e.g., As fill for someone's backyard).

2) This question is particularly tricky to answer. The HQ policy on removals is changing all the time. I think that right now, HQ is counting qualified removals all the way up to when the site goes final. If the company has removed all known hot spots to EPA's approval and these areas no longer are a risk to human health and the environment, I doubt that they could still be counted as a source. At that point, the targets located on those areas would not count in the HRS score. Is the facility still releasing the Cobalt 60? Could the soil easily become recontaminated? Did the company get all of the contamiantion in its cleanup or is there still contamination left at the residences?

I hope that this helps. It sounds like with the right information, this might be an HRS eligible site.

Sincerely,

Tanya
-----Original Message-----
From: Baker.Lorie@epamail.epa.gov [mailto:Baker.Lorie@epamail.epa.gov]
Sent: Friday, August 09, 2002 2:15 PM
To: Amme, Tanya
Subject: Radiation Site - Early Technical Assistance

Tanya,

We are trying to score a radioactive site in Maryland, and I have a question about documenting an observed release to air. FYI, we're also scoring the soil pathway, but may need both pathways to score the site.

Without getting into too much detail, the facility uses and repackages cobalt 60 in their operation. They've lost their NRC license for a portion of their operation, which is why we are now involved. THe State of Maryland has required the company to monitor offsite residences for "hotspots" throughout their operation. Numerous "hot spots" have been found offsite and the soils have been excavated and removed.

1) The only logical explanation for the offsite contamination is that the cobalt 60 particles are transported through the air on dust

ORIGINAL

particles. Can we use this historical information, which also includes an estimate of the concentration of cobalt 60 in uCi removed from the "hot spots" to document a release to air by direct observation?

2) Since the "hot spots" have been removed, can we still count the people within that distance ring as actually contaminated targets? There is no guarantee that there aren't more "hot spots" out there that just haven't been found yet.

Thanks for any help or advice you can give.

ORIGINAL

Lorie Baker
08/23/02 08:25 AM

To: Kevin Wood/R3/USEPA/US@EPA
cc:
Subject: Health advisory is NOT warranted

----- Forwarded by Lorie Baker/R3/USEPA/US on 08/23/02 08:25 AM -----

Sheri Minnick
08/22/02 03:00 PM

To: Christine Wagner/R3/USEPA/US@EPA, Lorie Baker/R3/USEPA/US@EPA, Dennis Matlock/R3/USEPA/US@EPA
cc:
Subject: Health advisory is NOT warranted

FYI, I asked Pete to forward me ATSDR's opinion on Neutron Products.

----- Forwarded by Sheri Minnick/R3/USEPA/US on 08/22/2002 02:59 PM -----

Peter Gold
08/22/2002 02:42 PM

To: Sheri Minnick/R3/USEPA/US@EPA
cc:
Subject: Health advisory is NOT warranted

Please see the attached. Thanks
----- Forwarded by Peter Gold/R3/USEPA/US on 08/22/02 02:41 PM -----

"Charp, Paul" <pac4@cdc.gov>
08/16/02 08:49 AM

To: "Williams, Robert C. (Bob)" <rcw1@cdc.gov>, "Isaacs, Sandra (Sandy) G" <Sgi1@cdc.gov>
cc: Tom Stukas/R3/USEPA/US@EPA, Peter Gold/R3/USEPA/US@EPA
Subject: Health advisory is NOT warranted

I have returned from the Neutron Products site visit where I met with ATSDR regional staff, EPA, state, and facility representatives. The site is in a rural area with less than 20 houses within a kilometer of the facility. The closest residences are either owned by the facility or are vacant. The EPA is considering listing the site but the Site Assessment Manger does not believe the facility will score high enough to trigger listing the site.

We performed radiological surveys and collected environmental samples around the facility property and off-site areas. ATSDR assisted in the surveys, identification of sampling locations, and collection of samples. The radiation levels 200 yards from the facility are indistinguishable from background; any elevated radiation readings are from the waste stored on site. Per conversations with the state, Neutron Products is under a court order to remove the waste but no action has been taken as yet. The site releases about 6 microcuries of cobalt 60 per year; this is within regulatory limits. Any air releases are in the form of metallic cobalt and the resulting contamination is particulate (hot spots).

In a nutshell, based on observations of population estimates, levels of radiation exposure surrounding the facility (off-site), and no uniform off-site contamination, I do not believe the current site conditions pose any threat to human health. No off-site soil contamination was found that exceeded the DHAC soil screening criteria; in fact no contaminated areas were found off-site.

If you would like a more detailed report, please let me know.

Thank you

ORIGINAL

Paul A. Charp, Ph.D.
Senior Health Physicist
Division of Health Assessment and Consultation
CDC/ATSDR
1600 Clifton Road E 56
Atlanta, Georgia 30333
404 498 0365
404 498 0063 (fax)

ORIGINAL

TO Kevin Wood

from Alicia Shultz

3 pages including cover

all info. for employee exposure. more to come.

10/3/86 Conf.
ORIGINAL
1 10

NEUTRON PRODUCTS Inc
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson, Maryland 20842 USA
301-349-5001 FAX: 301-349-5007

File

September 9, 1996

Faxed 9/11/96

Mr. Roland G. Fletcher, Environmental Manager
Radiological Health Program
Maryland Department of the Environment
2500 Broening Highway
Baltimore, Maryland 21224

[redacted]

VIA FAX: 410/631-3198

Re: License MD-31-025-01

Dear Mr. Fletcher:

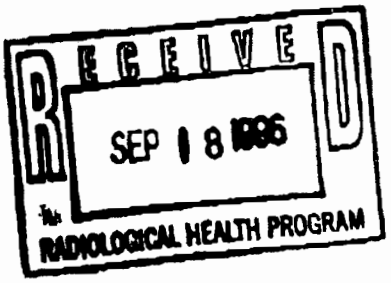
In accordance with my telephone conversation with Mr. Trump this morning, this is to document that Neutron Employee 030 detected a reportable contamination of 67,200 dpm on the HECM when exiting the LAA at approximately 11:10 AM on September 9, 1996.

The contamination:

- was on the employee's underwear;
- was not on the employee; and,
- was completely removed when the employee changed to clean underwear.

The Acting RSO was notified and no further action was necessary nor was taken.

If there are any further questions or action, please let me know.



Sincerely,

NEUTRON PRODUCTS, INC.

Marvin M. Turkanis
Vice President
Acting Radiation Safety Officer

MMT/tfm

ORIGINAL

Maryland Department of the Environment
Radiological Health Program

Memo to: Alan Jacobson
From: Donna Gaines
Date: July 10, 2000
Subject: Telecon with Jeff Williams from NPI

On July 10, 2000 at 1500 hrs. Mr. Williams called RHP to report two incidents. Ms. Donna Gaines took the call.

1. A reading of 73,700 dpms was reported by the Heckman on Dick Demory's right shoe cover.

2. During a property survey at the residence of [redacted] located at [redacted] Road, Dickerson, Maryland environmental contamination was detected. The survey was conducted by Ms. Cathy Bupp on 7/10/00, and the "hot spot" detected approximately at 1200 hrs. She was then assisted by Danny Wineholt and Billy Ransahoff. Background was 8ur/hr. Contact with the hot spot was reported as 50 uR/hr, 20 cm from a pail of dirt that was removed was reported as 8uR/hr above background, and 1 meter from the hot spot was equal to background. The survey was conducted using an Eberline E600 and Bicron MicroRem meter. The spot was found underneath of a tree in an area 2ft x 4ft. A total of 25 gallons of soil were removed and it was determined that 0.5 microCuries of Co-60 were present. The [redacted]'s are out of town until tomorrow. Their property is between [redacted]'s and the park. This property survey was originally scheduled for last month. A more detailed analysis on the activity is to be conducted.

ORIGINAL

TO Kevin Wood

from Alicia Shultz

3 pages including cover

all info. ~~for employee~~

~~exposure~~ more to come.

soil samples at residence

ORIGINAL

Radiation Safety Training Program
Violation:

Radiation Safety Training is conducted by R.E. Alexander, CHP at a quarterly frequency. Inspectors reviewed training records for the fourth quarter of 1994 and the first and second quarter of 1995. Records were complete and organized. The RSO stated that all employees who have been in the LAA within the last 12 months are required to attend. Amendment #33 of license condition 13, Item H dated May 23, 1989 requires that the Health Physics Consultant must provide training on a quarterly frequency to all employees who, under any circumstances, may have access to the LAA. Attendance is mandatory and must be documented. However, NPI failed to provide this training to a key LAA employee during the fourth quarter of 1994, the first quarter of 1995 and the second quarter of 1995.

Summary of Melting Campaign and Hot Cell Cleanup, April 1995:

The licensee melted 284,172 Curies Cobalt-60. Thirteen employees participated in the hotcell cleanup which lasted from April 24 to 27, 1995. The maximum whole body exposure to an employee was 965 mRem. The maximum exposure to a wrist was 1308 mRem. The total whole body man Rem for the cleanup was 5445 mRem.
Dosimetry

Inspectors reviewed dosimetry records for the year to date (YTD) of 1995. The maximum whole body exposure for YTD 1995 was 2063 mRem. Three employees received between 1.0 Rem and 2.0 Rem for YTD 1995. The maximum wrist exposure for YTD 1995 was 4676 mRem.

Violation:

License condition # 13, Amendment # 35 and letter dated November 26, 1990 requires that employees must wear TLD ring badges while participating in hot cell cleanups. However, NPI personnel failed to wear finger badges from April 24 to 27, 1995 while conducting hot cell cleanup activities. The RSO stated that wrist badges were worn to evaluate extremity exposures because ring badges were not available. A Vice President stated that he forgot to order the ring badges and since the dose rate in the hot cell was less than 20.0 R/hr at contact, rings were not really necessary.

Environmental Monitoring and Independent Physical Measurements:

Dose Rate Survey of LAA
Measurements conducted with an Eberline PIC-6 on August 30, 1995

Hot cell HEPA filter	2.0 R/hr @ contact
North Waste Room	500.0 mR/hr @ door
South Waste Room	500.0 mR/hr @ door

Dose Rate Survey of Dickerson Community – ② Samples collected within 20 feet of the actual home dwelling according to Alan Jacobson
Measurements conducted with a Bicron miroRem Surveyor on August 30, 1995

① Home	30 uRem/hr	② Yard	40 uRem/hr
Home	25 uRem/hr	Yard	30 uRem/hr

All measurements taken outside the home
① Survey within 5 feet of home, dwelling

① Within 5 feet of home

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①Home	20 uRem/hr	②Yard	55 uRem/hr	②Within 20 feet of home
Home	20 uRem/hr	Yard	25 uRem/hr	
Home	30 uRem/hr	Yard	42 uRem/hr	

Note: These dose rates indicate that there is a potential to exceed the dose limit to member of the general public (100 mRem per year).

Environmental surveys were conducted at the 's property and the property on August 30, 1995 using an Eberline PRM-6 with a SPA-3 probe, an Eberline PRM-6 with a LEG probe, a Ludlum micro-R meter, and a Bicron micro Rem surveyor. No contamination was found on these properties.

Evaluation of soil down stream of plant: Lab Report is attached

Dry Pond by inlet	315,000 pCi/kg
Dry Pond by outlet	69,000 pCi/kg
Drain Field approx. 50 feet off site	3,600 pCi/kg
Creek	430 pCi/kg

Home = survey within 5 feet of home, dwelling

Yard = survey within 20 feet of home, dwelling

Background for the survey was 6-11 uRem/hr

Samples were collected using a hand trowel and soil placed in plastic bag and dose rate recorded. Background, 11 uRem/hr subtracted from the dose rates recorded above, the dose rates = survey instrument reading - background dose rate.

Neutron Products, Inc.

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Location: Dickerson, Montgomery County, MD
EPA (CERCLIS) ID: MDN000305785
Site ID (WasteLAN): 0305785
DSN: MD-517
SSID: A3P1

Contact List
(updated December 2002)

NAME	ADDRESS	PHONE/FAX	COMMENTS
EPA REGION III			
Lorie Baker	mail code: 3HS34	215-814-3355	Site Assessment Manager
	mail code: 3HS23		Remedial Project Manager
Christine Wagner	mail code: 3HS31	804-833-9440	On-Scene Coordinator (Fund)
Dennis Matlock	mail code: 3HS32	304-234-0284	On-Scene Coordinator (Enforcemt)
Kevin Wood	mail code: 3HS34	215-814-3303	NPL/HRS Coordinator
Carrie Deitzel	mail code: 3HS43	215-814-5525	Community Involvement Coord.
	mail code: 3HS11		Civil Investigator
	mail code: 3HS41		Toxicologist
	mail code: 3HS41		Hydrogeologist
Michael Burke	mail code: 3CG10	410-267-5740	State Liaison Officer
Charles Howland	mail code: 3RC43	215-814-2497	Attorney
Sheri Minnick	mail code: 3AP23	215-814-2089	Radiation Specialist
Bucky Walters	mail code: 3HS00	215-814-3139	ATSDR
EPA CONTRACTORS			
Tetra Tech, Inc.	1533 Scotch Ridge Rd. Duanesburg, NY 12056	t: 518-356-3793	FedEx/courier: Schenectady 12306
PROPERTY OWNERS/PRPS			
Jack Ransahoff			
LOCAL GOVERNMENTS & AUTHORITIES			
Montgomery County			
STATE OF MARYLAND			
	MDE	t: 410-537-	
MEDIA			
CITIZENS/CITIZEN GROUPS/ETC.			
Dickerson Community Group			

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TO Kevin Wood

from Alicia Shultz

23 pages including cover

all info. ~~for employee~~ ~~exposure~~. more to come.

~~soil samples at residence~~

15 R/hr
200 mR/hr

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PERSONNEL MONITORING AND EXPOSURE:
Monthly and quarterly TLDs are processed by Eberline. SRDs are also used. Exposure records were reviewed from 1/17/96 to 11/15/96. The waste shipment (packaging) exposures were reviewed for August and September 1996. The highest whole body dose was 1.78 REM for the assistant RSO. A copy of the exposure report is attached.

10. **EXPOSURE TO CONC. OF RADIOACTIVE MATERIALS - (ISOTOPES INVOLVED, RECORDS AND METHODS OF EVALUATION):** Licensee was cited for not keeping the radiation dose to their neighbors as low as reasonably achievable (ALARA). TLDs posted by NPI since 8/13/96 outside and inside the closest two houses are projecting the following doses: mRem/yr.

N/C

Mr. 's house	Inside - 88 mR/yr	Outside - 201 mR/yr
NPI Rental house	Inside - 43 mR/yr	Outside - 116 mR/yr

11. **EFFLUENTS TO UNRESTRICTED AREAS - (COMPLIANCE WITH MPC's):** No Co-60 particles were reported found by the licensee on their environmental surveys since the last inspection. However a 300 uCi particle was removed from the floor by the Hot Cell door.

12. **DISPOSALS - (BURIALS, INCINERATION, ETC.):** The Cobalt-60 sources are recycled by the licensee. There are old Cobalt-60 sources in the pool. There have been no actual disposals of Co-60 sources. A waste shipment was made of bagged waste (contaminated shoe covers, disposable gloves, etc.) in September, 1996. NPI used a twenty foot heavily shielded Sea-Land Container to ship the bags which were 200 mR/hr on contact to SEG for incineration. This waste was "pre-sorted" by NPI in their courtyard under a plastic tent to control the contamination. Licensee stated there are still about 100 bags left in the waste storage rooms, all have dose rates greater than 200 mR/hr at contact, and some have dose rates of 15 R/hr.

13. **MISCELLANEOUS SURVEYS, EVALUATIONS, & RECORDS - (EXTERNAL RADIATION LEVELS IN UNRESTRICTED AND RESTRICTED AREAS; TRANSPORT VEHICLES; CONTAMINATION LEVELS, SAFETY SURVEYS. RECORDS RELATING TO NUCLEAR MEDICINE, MEDICAL PROGRAM; INSTRUMENT CALIBRATIONS RECORDS.):** Radiation Safety Committee meeting minutes were reviewed for the last year. Monthly environmental surveys and monthly plant floor surveys were reviewed. Other records reviewed were; Teletherapy Notice records, Shipment records, Bill of Ladings, Leak Test records, Internal QA records, Teletherapy Source Transfer records, Source Certificates, Contamination Wipes, and Meter Calibration records.

14. **LICENSE CONDITIONS - (REVIEW OF SPECIAL CONDITIONS):**
Licensee maintains a running inventory by source number. They produced 26 Co-60 sources during the last melt* These sources are 9,000 curies and made up of two or three slugs (which include some used slugs.)

* Date of malt?
Melt & Clean-up
March, 1996

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23 pages including cover

all info. ~~for employee~~ exposure. more to come.

~~soil samples at residence~~

~~15 R/hr~~

~~200 mR/hr~~

Readings with doors ~~closed~~ opened

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Radiation Safety Training Program
Violation:

Radiation Safety Training is conducted by R.E. Alexander, CHP at a quarterly frequency. Inspectors reviewed training records for the fourth quarter of 1994 and the first and second quarter of 1995. Records were complete and organized. The RSO stated that all employees who have been in the LAA within the last 12 months are required to attend. Amendment #33 of license condition 13, Item H dated May 23, 1989 requires that the Health Physics Consultant must provide training on a quarterly frequency to all employees who, under any circumstances, may have access to the LAA. Attendance is mandatory and must be documented. However, NPI failed to provide this training to a key LAA employee during the fourth quarter of 1994, the first quarter of 1995 and the second quarter of 1995.

Summary of Melting Campaign and Hot Cell Cleanup, April 1995:

The licensee melted 284,172 Curies Cobalt-60. Thirteen employees participated in the hotcell cleanup which lasted from April 24 to 27, 1995. The maximum whole body exposure to an employee was 965 mRem. The maximum exposure to a wrist was 1308 mRem. The total whole body man Rem for the cleanup was 5445 mRem.
Dosimetry

Inspectors reviewed dosimetry records for the year to date (YTD) of 1995. The maximum whole body exposure for YTD 1995 was 2063 mRem. Three employees received between 1.0 Rem and 2.0 Rem for YTD 1995. The maximum wrist exposure for YTD 1995 was 4676 mRem.

Violation:

License condition # 13, Amendment # 35 and letter dated November 26, 1990 requires that employees must wear TLD ring badges while participating in hot cell cleanups. However, NPI personnel failed to wear finger badges from April 24 to 27, 1995 while conducting hot cell cleanup activities. The RSO stated that wrist badges were worn to evaluate extremity exposures because ring badges were not available. A Vice President stated that he forgot to order the ring badges and since the dose rate in the hot cell was less than 20.0 R/hr at contact, rings were not really necessary.

Environmental Monitoring and Independent Physical Measurements:

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~~soil samples at residence~~

~~15 R/hr~~

~~200 mR/hr~~

Readings with doors closed

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Independent Physical Measurements

Inspectors conducted a dose rate survey of perimeter and 's property was conducted using a Bicron microRem Surveyor:

Fence by Road	30 uRem/hr
Fence by Dry Pond	70 uRem/hr
Fence by Dry Pond Far Side	30 uRem/hr
Fence RR-1	25 uRem/hr
Fence RR-2	25 uRem/hr
Fence RR-3	35 uRem/hr
Fence RR-4	30 uRem/hr
Fence RR-5	35 uRem/hr
s House	10 uRem/hr
s Yard	22 uRem/hr

Inspectors conducted a dose rate survey of the LAA area using an Eberline PIC-6 survey meter

60.0 mR/hr	back of hot cell
1.4 mR/hr	by hot cell window
20.0 mR/hr	@ contact with cask containing 6000.0 Ci Co-60
110 mR/hr	North Waste Room Door-closed
150 mR/hr	South Waste Room Door-closed

Miscellaneous Notes

A gate skirt flap was installed on the gate to the courtyard area of the LAA to prevent animal access to this area and it appears to be working.

Inspectors toured the LAA and conducted checks of systems. All channel pressure gauges were operational and found to be within licensee specifications. A small roof leak was noted into the main pool area.

The Health Physicist provided inspectors with a demonstration of NPI's new gas proportional floor monitoring which uses a Ludlum model 12 count rate meter mounted on a cart. The system was not working correctly at the time of the demonstration. There appears to be a gas leak or a problem with the gas flow system. Records of floor monitoring surveys were reviewed. No activity was found.

The Health Physicist also provided RHP inspectors with a demonstration of NPI's new counting system. Currently they are counting soil samples for 10 minutes.

Ten drums of contaminated soil were removed form the dry pool during the week of July 15-22, 1994 and 10 drums were removed on July 8, 1995. These drums were placed in a trailer in the LAA for storage. A wipe survey of the backhoe was reviewed and indicated that no contamination was present.

Inspectors conducted a review of NPI's perimeter monitoring program. Results of the first and second quarters of 1994 indicate that NPI will exceed the 500 mRem per year requirement. Results were also cross checked with results from the RHP monitoring program and found to be similar.

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